APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,572	10/26/2001	Michael S. Foster	030048028US	4162

25096 7590 11/06/2003	EXAMINER	
PERKINS COIE LLP	MATTIS, JASON E	
PATENT-SEA		
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SEATTLE, WA 98111-1247	2665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/046,572	FOSTER ET AL.
	Examiner	Art Unit
	Jason E Mattis	2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-41* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-41* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>5/9/02</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

     If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____ .

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

     a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)		4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .	
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)		5) ☐ Notice of Informal Patent Application (PTO-152)	
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .		6) ☐ Other: .	

DETAILED ACTION

Drawings

1.   The drawings are objected to because Figure 16 has two separate items labeled

1601. The specification refers to item 1602 in Figure 16 on page 29 of the specification.

One of the items labeled 1601 needs to be changed to 1602. A proposed drawing

correction or corrected drawings are required in reply to the Office action to avoid

abandonment of the application. The objection to the drawings will not be held in

abeyance.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1, 3, and 4 rejected under 35 U.S.C. 102(e) as being anticipated by

Filgate (U.S. Pat. 6292488). With respect to claim 1, Filgate discloses a method for

resolving deadlocks in a computer system (See the abstract of Filgate for reference to

this method), with bridges, which can be interpreted to be switches. Filgate also

discloses prompting a recovery mechanism 355 when a deadlock is detected (See

column 5 lines 35-64 and item 355 in Figure 3 of Filgate for reference to prompting a

recovery mechanism). This step of prompting a recovery mechanism 355 can be

interpreted to be a step for receiving data indicating that a port is to be part of a

conflicting connection. Since the method of Filgate detects a deadlock, it is inherent

that the conflicting port is already part of a connection being established. Filgate further

discloses using bridge request priority (See column 6 line 50 to column 7 line 3 of

Filgate for reference to bridge priority), which can be interpreted to be connection

priority, to resolve the deadlock. In the method of Filgate, when the current bridge

request has higher priority, it secures the data path, and when the current bridge

request does not have higher priority, request for control of the bridge is terminated and

the conflicting bridge request is granted. With respect to claim 3, Filgate discloses that

a time delay value (See column 6 lines 36-49 of Filgate for reference to time delay

values), which determines bridge priority, may be pre-programmed into each bridge. In

this way, when connection priorities are equal, an identifier of the bridge that sent the

connection request is used as a tiebreaker. With respect to claim 4, Filgate discloses

prompting a CPU 320 through a bridge when a conflicting connection resulting in

deadlock has been found (See column 5 lines 35-64 and item 320 in Figure 3 of Filgate

for reference to prompting a CPU). This step of prompting a CPU 320 through a bridge

can be interpreted to be a step for sending data through a partially built connection

indicating that the current connection cannot be established.

4.   Claims 9, 11, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by

Filgate. With respect to claim 9, Filgate discloses a computer system using

communication gateway devices, such as bridges (See the abstract of Filgate for

reference to a computer system). The computer system of Filgate is a switching

system, which inherently establishes connections through ports. Filgate also discloses prompting a recovery mechanism 355 when a deadlock is detected (See column 5 lines 35-64 and item 355 in Figure 3 of Filgate for reference to prompting a recovery mechanism). The recovery mechanism 355 can be interpreted to be a component that receives a communication at a port indicating that the port is to be part of a conflicting connection established through the device. Filgate further discloses that the recovery mechanism 355 maintains the existing bridge request, or connection, when the existing bridge request has a higher priority than the conflicting bridge request, or connection, and terminates the existing bridge request, when the conflicting bridge request has a higher priority (See column 6 line 50 to column 7 line 3 of Filgate for reference to the process carried out by the recovery mechanism). With respect to claim 11, Filgate discloses that a time delay value (See column 6 lines 36-49 of Filgate for reference to time delay values), which determines bridge priority, may be pre-programmed into each bridge. In this way, when connection priorities are equal, an identifier of the bridge that sent the connection request is used as a tiebreaker. With respect to claim 12, Filgate discloses prompting a CPU 320 through a bridge when a conflicting connection resulting in deadlock has been found (See column 5 lines 35-64 and item 320 in Figure 3 of Filgate for reference to prompting a CPU). This step of prompting a CPU 320 through a bridge can be interpreted to be a step for sending data through an existing connection indicating that the existing connection cannot be established.

5.	Claims 20, 21, 23, 24, and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Filgate. With respect to claim 20, Filgate discloses a method for

resolving deadlocks in a computer system, which can be interpreted to include a routing

device, while connections are being established though the system. Filgate also

discloses a method of prompting a recovery mechanism 355 when a deadlock is

detected (See column 5 lines 35-64 and item 355 in Figure 3 of Filgate for reference to

prompting a recovery mechanism). Filgate further discloses a method to terminate a

current bridge request, or connection, and establish a new bridge request, or connection

(See column 6 line 50 to column 7 line 3 of Filgate for reference to this method). With

respect to claim 21, Filgate discloses a method of terminating the current bridge

request, or connection and establishing the new bridge request, or connection, when

the new bridge request has a higher priority (See column 6 line 50 to column 7 line 3 of

Filgate for reference to this method). With respect to claim 23, Filgate discloses a

method where a time delay value (See column 6 lines 36-49 of Filgate for reference to

time delay values), which determines bridge priority, may be pre-programmed into each

bridge. In this way, when connection priorities are equal, an identifier of the bridge that

sent the connection request is used as a tiebreaker. With respect to claim 24, Filgate

discloses a method where a CPU 320 is prompted through a bridge when a conflicting

connection resulting in deadlock has been found (See column 5 lines 35-64 and item

320 in Figure 3 of Filgate for reference to prompting a CPU). This step of prompting a

CPU 320 through a bridge can be interpreted to be a step for sending data through a

partially built connection indicating that the current connection cannot be established.

With respect to claim 29, Filgate discloses a method with a computer system, which

inherently has ports, where a deadlock condition, or conflict, occurs when a current

connection and a new connection attempt to use the same bridges (See column 2 line 26 to column 3 line 15 of Filgate for reference to the deadlock condition).

6.   Claims 32, 34, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Filgate. With respect to claim 32, Filgate discloses a computer system and a means for prompting a recovery mechanism 355 when a bridge used in a current connection is also to be used in a conflicting connection (See column 5 lines 35-64 and item 355 in Figure 3 of Filgate for reference to prompting a recovery mechanism). This step of prompting a recovery mechanism 355 can be interpreted to be a step for receiving data indicating that a port is to be part of a conflicting connection. Filgate also discloses a means for maintaining the existing bridge request, or connection, when the existing bridge request, or connection, has a higher priority than the conflicting bridge and terminating the bridge request for the existing bridge, when the conflicting bridge request has a higher priority (See column 6 line 50 to column 7 line 3 of Filgate for reference to the process carried out by the recovery mechanism). With respect to claim 34, Filgate discloses that a time delay value (See column 6 lines 36-49 of Filgate for reference to time delay values), which determines bridge priority, may be pre-programmed into each bridge. In this way, when connection priorities are equal, an identifier of the bridge that sent the connection request is used as a tiebreaker. With respect to claim 35, Filgate discloses prompting a CPU 320 through a bridge when a conflicting connection resulting in deadlock has been found (See column 5 lines 35-64 and item 320 in Figure 3 of Filgate for reference to prompting a CPU). This step of prompting a CPU 320 through a bridge can be interpreted to be a step for sending data

through an existing connection indicating that the existing connection cannot be

established.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 2, 10, 22, and 33 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Filgate in view of Yasuda et al. (U.S. Pat. 5892923). Filgate differs

from claims 2, 10, 22, and 33 in that Filgate does not specifically disclose priority of a

connection being based on priority of data to be sent through the connection. Yasuda

et al., in the field of communications, discloses controlling routing connections using

message priority, which can be interpreted to be priority of data (See column 4 lines 8-

17 of Yasuda et al. for reference to this method). The method Yasuda et al. results in

the priority of switch connections being based on the priority of the data being sent

through the connections. This method has the advantage of making sure that the most

important data will be routed first when a deadlock condition occurs. It would have been

obvious for one of ordinary skill in the art at the time of the invention, when presented

with the work of Yasuda et al., to apply the method of assigning connection priority

based on the priority of data to be sent through the connection to the system of Filgate,

with the motivation being to make sure that the most important data will be routed first

when a deadlock condition occurs.

9.   Claims 5, 13, 25, 30, and 36 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Filgate in view of Srinivason et al. (U.S. Pat. 6304549). Filgate

differs from claims 5, 13, 25, 30, and 36 in that Filgate does not disclose, when the

existing or current connection has a lower priority than the new connection, trying to

establish the existing or current connection through another port of the switch.

Srinivason et al., in the field of communications, discloses attempting a different route

when a connection is unsuccessful (See column 11 lines 29-39 of Srinivason et al. for

reference to attempting a different route. The method of attempting a different route is

equivalent to attempting to establish a losing connection through another port of the

switch. This method has the advantage of taking less time to route the data of the

losing connection because, if a different route if found, the data can be transferred

without having to wait until the data of the conflicting connection has finished being

transferred. It would have been obvious for one of ordinary skill in the art at the time of

the invention, when presented with the work of Srinivason et al., to apply the method of

attempting to find a different route for an unsuccessful connection to the system of

Filgate, with the motivation being to reduce the amount of time to transfer the data of

the losing connection when conflicting connections occur.

10.   Claims 6, 14, 26, and 37 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Filgate in view of Ogimoto et al. (U.S. Pat. 6032205). Filgate differs

from claims 6, 14, 26, and 37 in that Filgate does not disclose the data as being a start-

of-connection frame. Ogimoto et al., in the field of communications, discloses data

being processed within a priority controller 113 through header decode circuits 109 and

111 in a switching environment based on leading words in the messages (See column 8

lines 7-20 and items 109, 111, and 113 in Figure 2 of Ogimoto et al. for reference to

data being processed based on leading words). The leading words of Ogimoto et al.

initiate a transmission permit signal, which can be interpreted to be a start-of-connection

frame. This method has the advantage of encoding routing and priority in the data so

that connection paths can be requested and priorities can be determined. It would have

been obvious for one of ordinary skill in the art at the time of the invention, when

presented with the work of Ogimoto et al., to apply the use leading words to the system

of Filgate, with the motivation being to encode routing and priority in the data so that

connection paths can be requested and priorities can be determined.

11.   Claims 7, 8, 15, 16, 27, 28, 38, and 39 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Filgate in view of Latif et al. (U.S. Pat. 6400730). Filgate

differs from claims 7, 8, 15, 16, 27, 28, 38, and 39 in that Filgate does not specifically

disclose a switch being Fibre Channel and InfiniBand compatible. Latif et al., in the field

of communications, discloses a switch comprising any combination of Fibre Channel

and InfiniBand ports (See column 4 lines 13-39 of Latif et al. for reference to the Fibre

Channel and InfiniBand ports). Making the switch Fibre Channel and InfiniBand

compatible has the advantage of allowing the switch to process data using the Fibre

Channel standard and the InfiniBand standard. It would have been obvious for one of

ordinary skill in that art at the time of the invention, when presented with the work of

Latif et al., to apply a Fibre Channel and InfiniBand compatible switch to the system of

Filgate, with the motivation being to allow the switching system to process data using the Fibre Channel standard and the InfiniBand standard.

12.   Claims 17, 18, 19, 31, 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Filgate in view of Liew (U.S. Pat. 5327552). Filgate differs from claims 17, 18, 18, 40, and 41 in that the deadlock resolution method and device of Filgate is applied to a computer system and does not specifically disclose that the device is a routing device, switch, an interconnect fabric module, and node. Liew, in the field of communications, discloses a method and device for correcting routing errors, including a method for deadlock prevention, for use with a routing device, a switch, an interconnect fabric module, and a node (See column 1 lines 7-24 of Liew for reference to the use of a deadlock prevention method with a routing device, a switch and a node). Including a deadlock prevention method in a routing device, a switch, an interconnect fabric module, and a node has the advantage of applying the method to different types of switching networks, rather than just to a computer network. It would have been obvious for one of ordinary skill in that art at the time of the invention, when presented with the work of Liew to apply a routing device, a switch, an interconnect fabric module, and a node to the method of Filgate, with the motivation being to use the deadlock resolution method and device in with different types of switching networks.

Conclusion

13.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Olnowich et al. (U.S. Pat. 5680402) discloses another similar switching apparatus with deadlock detection and correction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason E Mattis whose telephone number is (703) 305-8702. The examiner can normally be reached on M-F 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703) 308-6602. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Jason E Mattis
Examiner
Art Unit 2665

jem

HUY D. VU
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